

This issue of the Diabetes Quality Care Monitoring System – Quality Improvement Report (DQCMS-QIR) highlights information regarding lifestyle therapy to reduce CVD risk factors

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## Intensive lifestyle therapy reduces CVD risk factors better than metformin therapy or placebo

**R**esearchers in the Diabetes Prevention Program (DPP) have concluded that intensive lifestyle therapy promotes greater reduction of risk factors for cardiovascular disease (CVD) than metformin therapy or placebo in patients with impaired glucose tolerance (IGT). The DPP previously demonstrated the effectiveness of intensive lifestyle therapy and metformin therapy in delaying or preventing the onset of type 2 diabetes in persons with IGT. For this study, researchers compared the impact of intensive lifestyle intervention or metformin therapy with that of placebo in a prospective assessment of the prevalence of CVD and its risk factors in the DPP patient population. Eligibility for the study's 3,234 participants required a fasting plasma glucose (FPG) level of 96 to 124 mg/dL and a 2-hour oral

glucose tolerance test value of 140 to 199 mg/dL. A detailed physical examination and medical history were performed at baseline and annually thereafter. Participants were randomly assigned to a regimen of either placebo twice daily, metformin (850 mg bid), or an intensive lifestyle-modification regimen. The lifestyle modification included a healthy, low-fat, low-calorie diet, combined with a minimum of 150 minutes weekly of moderate-intensity physical activity, such as brisk walking, to achieve and maintain a weight reduction of at least 7% of initial body weight.

The participants were followed for an average of 3.2 years. Thirty percent of participants had hypertension at baseline, rising to 39% and 40%, respectively, in the placebo and metformin groups, but remaining unchanged in the lifestyle group ( $P<0.001$ ). The lifestyle group also showed small but statistically greater reductions in systolic and diastolic blood pressures compared with the placebo and metformin groups ( $P<0.001$ ). At baseline, 17% of all groups used antihypertensives; at 3 years, that percentage rose to 23% in the lifestyle group, compared with 31% in the placebo group and 32% in the metformin group ( $P,0.001$ ).

Total cholesterol and LDL-C levels were similar in all groups at baseline (203 and 124 mg/dL, respectively) and did not differ significantly over time in overall mean percentage change from baseline. Mean triglyceride levels fell in all 3 groups, but most significantly in the lifestyle group (-25 mg/dL vs -12 mg/dL with placebo and -7 mg/dL with metformin,  $P<0.001$ ).

HDL-C also showed a small but statistically greater rise in the lifestyle group (1 mg/dL) compared with changes in the placebo (-0.1 mg/dL) and metformin (+0.3 mg/dL) groups ( $P<0.001$ ). The lifestyle group also had a significantly greater reduction in the prevalence of atherogenic LDL particles-the smaller, denser phenotype B- than the placebo or metformin groups ( $P<0.001$ ).

Only 5.2% of participants reported taking pharmacologic dyslipidemia therapy at study entry. At year 3, 16% of the placebo group required pharmacologic dyslipidemia therapy, compared with 12% of the lifestyle group ( $P<0.001$ ). Overall, very few subjects suffered cardiovascular events and the frequencies (2.2% in intensive lifestyle, 1.5% in metformin, and 1.7% in placebo groups) did not differ significantly among groups.

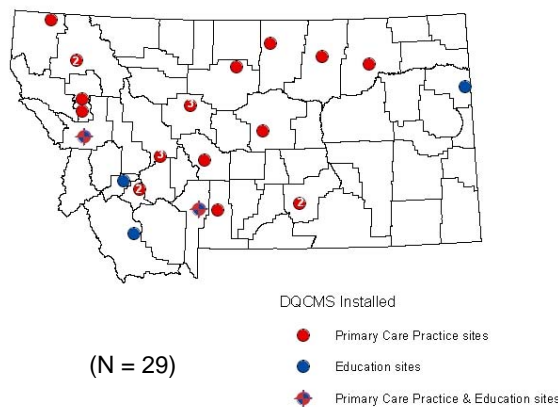
The authors conclude that intensive lifestyle therapy reduces key CVD risk factors, and they speculate that the lifestyle cohort may demonstrate beneficial CVD effects with continued follow-up, which is under way.

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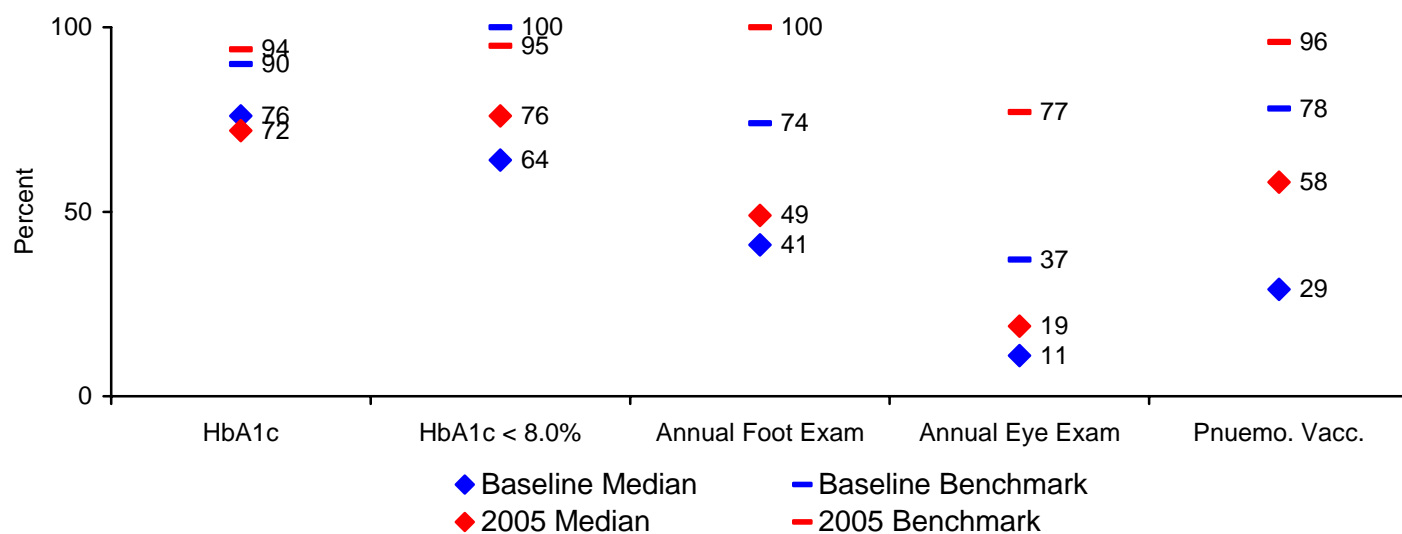
**Small Steps, Big Rewards** – The adaptation of the DPP protocol is now available to order or download at [www.ndep.nih.gov/get-info/dpi.htm](http://www.ndep.nih.gov/get-info/dpi.htm)



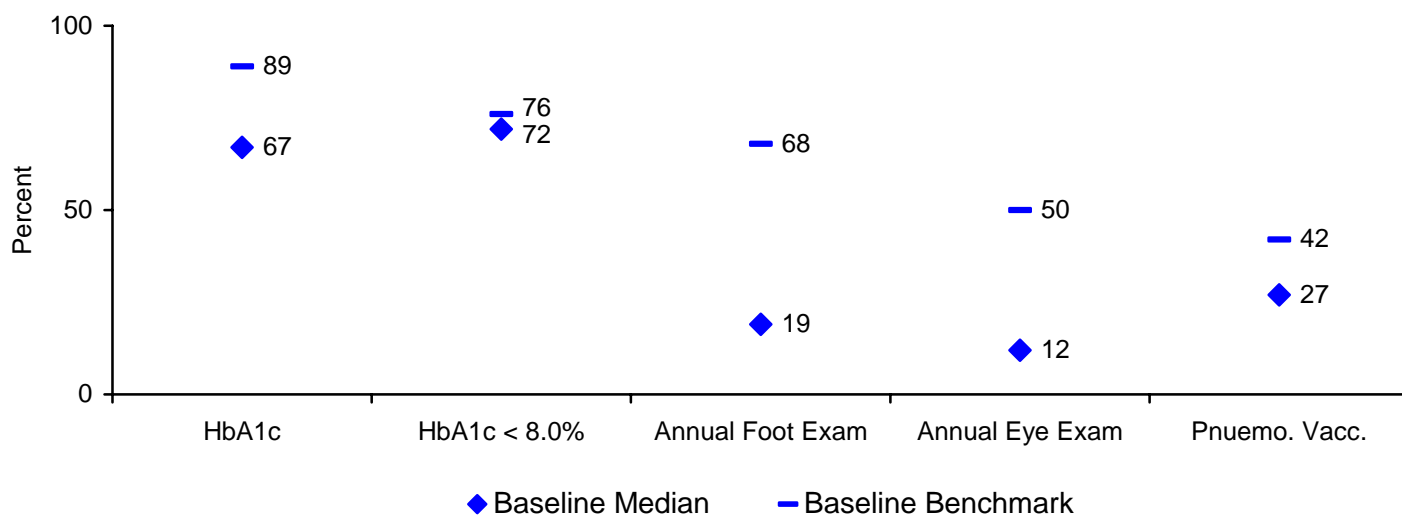
**FIGURE 1: PHYSICIAN OFFICES AND EDUCATION SITES PARTICIPATING IN THE DIABETES QUALITY CARE MONITORING SYSTEM (DQCMS) PROJECT, APRIL 2005**



**FIGURE 2: DIABETES CARE INDICATORS FROM MONTANA PHYSICIAN OFFICES PARTICIPATING IN THE DCMS/DQCMS PROJECT, BASELINE (N = 23 CLINICS; 4,805 PATIENTS) AND APRIL 2005 (N = 24 CLINICS; 6,935 PATIENTS)**



**FIGURE 3: DIABETES CARE INDICATORS FROM MONTANA DIABETES EDUCATION SITES PARTICIPATING IN THE DQCMS PROJECT, APRIL 2005 (N = 4 SITES, 912 PATIENTS)**



# Successful Quality Improvement

## ~Using Registries to Target Management in Lipid Levels ~

**Background:** Although the importance of lowering LDL cholesterol to  $< 100$  mg/dL to reduce the risk of cardiovascular disease in persons with diabetes is well known, not all patients receiving lipid lowering therapies achieve the target. Now the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (ATP III) has recommended a target LDL  $< 70$  mg/dL be considered for patients with known Coronary Artery Disease (CAD) and diabetes.

**Intervention:** One Montana primary care practice was recruited for quality improvement efforts to target advancing therapy in the management of lipid levels and lifestyle modifications in patients with diabetes. In April of 2004, baseline data for all patients with a lipid profile measured in the past 12 months were identified using a computer-based registry and a random sample of charts were reviewed. The baseline data was analyzed and presented to the clinic staff. Discussion amongst the clinicians was generated about changes they planned. A follow-up chart review was completed in December 2004.\*

**Results:** From baseline to follow-up, the percentage of patients with at least one lipid profile measured in the past 12 months decreased slightly from 56% to 53%, respectively. There was a slight increase in the percentage of patients with LDL  $< 100$  mg/dL from baseline to follow-up (40% to 48%) with mean LDL values of 109 mg/dL and 107 mg/dL, respectively. There was a significant decrease in the mean triglyceride values from baseline to follow-up (202 mg/dL to 171 mg/dL). From baseline to follow-up, there was an increase in documentation of lifestyle advice (30% to 42%) and documentation of any change in lipid lowering medication (increase dose, added drug or changed drug) (13% to 21%). However, those with LDL values  $\geq 100$  were no more likely to have medication adjustments than those who had achieved the target of LDL  $< 100$ .

At both baseline and follow-up, 14% of the population had a documented history of Coronary Artery Disease (CAD). Among patients without a history of CAD, there was a slight decrease, in the percentage of patients with LDL values  $\geq 100$  mg/dL who were not currently on lipid lowering therapy, from baseline to follow-up, 43% to 37%, respectively. (Figure) In addition, there was also a decrease in the percentage of patients who were currently on lipid lowering therapy and who had an LDL value not at target (23% at baseline to 19% at follow-up). However, there was a 10-percentage point increase among patients with LDL values at target whether or not they are currently on lipid-lowering therapy from baseline to follow-up, 34% to 44%, respectively.

**Conclusion:** Diabetes registries can be useful to facilitate system changes to identify, treat and adjust therapies to reach patients with LDL values above recommended targets.

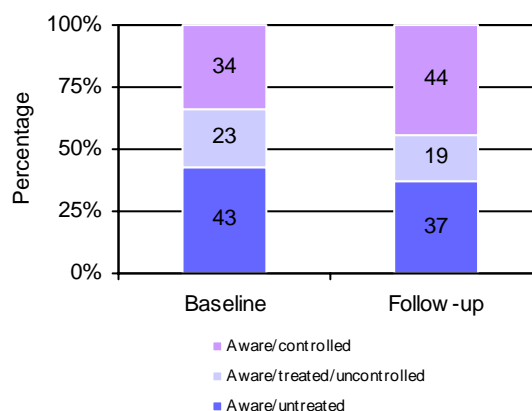
\*For more information on this project or if you are interested in a similar QI project, contact Nikki Buck at 444-7324.

### DEFINITIONS:

**Aware/controlled** – Patients with a LDL cholesterol test in the past 12 months and their LDL  $< 100$  mg/dL whether or not they are on current lipid lowering therapy

**Aware/treated/uncontrolled** – Patients with a LDL cholesterol test in the past 12 months, currently on lipid lowering therapy and LDL  $\geq 100$  mg/dL

**Aware/untreated** – Patients with a LDL cholesterol test in the past 12 months, LDL  $\geq 100$  mg/dL and not currently on lipid lowering therapy





# Professional Conferences

## Save the Dates:

Are you doing all that you can to assist your patients to quit smoking? Remember the 5 A's to successful smoking cessation:

- **A**sk
- **A**dvice
- **A**ssist
- **A**ssess
- **A**rrange

There is help available to quit smoking through the **Montana Quit Line**.

1-866-485 QUIT (7848)



**WHAT:** Montana Diabetes Conference

**WHEN:** October 6-7, 2005

**WHERE:** DoubleTree Hotel  
Missoula, MT

*(Call 406-444-6677 for more information)*

**WHAT:** Wyoming Diabetes Conference

**WHEN:** September 15-16, 2005

Dinner presentation Sep 14

**WHERE:** Holiday Inn  
Sheridan, WY

*(Call 307-587-5689 for more information or visit <http://wdh.state.wy.us/diabetes>)*

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**Home Page for  
Montana Diabetes Project**

<http://ahec.msu.montana.edu/diabetes>

**What's available on the website?**

- Children with Diabetes: A Resource Guide for Schools
- Diabetes Surveillance Reports
- Resource Library
- Information on Acanthosis Nigricans